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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,682	03/24/2000	Lloyd Watts	INT1P208	1800
21912	7590	10/27/2003	EXAMINER	
VAN PELT & YI LLP 10050 N. FOOTHILL BLVD #200 CUPERTINO, CA 95014			FAULK, DEVONA E	
			ART UNIT	PAPER NUMBER

2644

DATE MAILED: 10/27/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/534,682

Applicant(s)

WATTS, LLOYD

Examiner

Devona E. Faulk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22 is/are allowed.
- 6) ☒ Claim(s) 1, 12 and 21 is/are rejected.
- 7) ☒ Claim(s) 2-11 and 13-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2-11, 13-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zierhofer (U. S. Patent 5,983,139) in view of Lyon (U. S. patent 5,502,663).

Regarding claim 1, Zierhofer discloses a cochlear implant system disclosing a 12-channel filter bank (See Figure 1). A cochlear implant is an electronic device designed to provide sound information for adults and children who have a sensor neural hearing loss. It is well known in the art that cochlear implants have the common features of a microphone, a signal processor, a transmission system and an electrode or electrode array. Thus the cochlear implant system reads on “a system for processing audio signals”. Zierhofer further teaches a prefilter (16). Although Zierhofer teaches on a cochlear implant system with a 12 channel filter bank, he fails to disclose a sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. However, the concept of a

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sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency was well known in the art at the time of filing as taught by Lyon. Lyon teaches an electrical circuit simulating a cochlea model utilizing a digital filter having independent damping and frequency parameters (see Figure 2 where 201-209 are your filters, 211-219 are the HWR (half-wave rectifiers) and 221-229 are the AGC (automatic gain control circuits) (column 4, lines 41-46). A filter bank is an array of bandpass filters that spans the entire audible frequency spectrum. The bank serves to isolate different frequency components in a signal. Replacing Zierhofer's filter bank with the cochlear model would read on "a sequence of digital filters, wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. It is obvious that each filter would have a selected frequency and that Zierhofer's prefilter (16) would have to be configured to process more than one frequency since it is the input filter. Thus it would have been obvious to modify Zierhofer's cochlear implant system by using Lyon's cochlear model filter bank arrangement for the benefit of having a device that can be applied over a range of signal processing functions.

4. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Zierhofer (U. S. Patent 5,983,139) in view of Lyon (U. S. patent 5,502,663).

Regarding claim 1, Zierhofer discloses a cochlear implant system disclosing a 12-channel filter bank (See Figure 1). Digital bandpass filters are the type used (column 1, line 43). A cochlear implant is an electronic device designed to provide sound information for adults and children who have a sensor neural hearing loss. It is well known in the art that cochlear implants have the common features of a microphone, a signal processor, a transmission system and an

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electrode or electrode array. Thus the cochlear implant system reads on “ a system for processing audio signals”. Although Zierhofer teaches on the above elements, he fails to disclose a sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. However, the concept of a sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency was well known in the art at the time of filing as taught by Lyon. Lyon teaches an electrical circuit simulating a cochlea model utilizing a digital filter having independent damping and frequency parameters (see Figure 2 where 201-209 are your filters, 211-219 are the HWR (half-wave rectifiers) and 221-229 are the AGC (automatic gain control circuits) (column 4, lines 41-46). A filter bank is an array of bandpass filters that spans the entire audible frequency spectrum. The bank serves to isolate different frequency components in a signal. Replacing Zierhofer’s filter bank with the cochlear model would read on “a sequence of digital filters, wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. It is obvious that each filter would have a selected frequency. Since Lyon’s cochlear model (Figure 2) is essentially the same model as the applicant’s (Figure 4) than it is interpreted that for Lyon’s model (201-209; Figure 2) the output of each filter provides the tap or coefficient of the previous filter to the subsequent filter so as to allow coefficient sharing between a first and second filter. Thus it would have been obvious to modify Zierhofer’s cochlear implant system by using Lyon’s cochlear model filter bank arrangement for the benefit of having a device that can be applied over a range of signal processing functions.

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6. Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Zierhofer (U. S. Patent 5,983,139) in view of Lyon (U. S. patent 5,502,663).

Regarding claim 21, Zierhofer discloses a cochlear implant system disclosing a 12-channel filter bank (See Figure 1). Digital bandpass filters are the type used (column 1, line 43). A cochlear implant is an electronic device designed to provide sound information for adults and children who have a sensor neural hearing loss. It is well known in the art that cochlear implants have the common features of a microphone, a signal processor, a transmission system and an electrode or electrode array. Thus the cochlear implant system reads on “a system for processing audio signals”. Zierhofer further teaches that the input signal from the microphone (10) is applied to the 12-channel filter bank through the prefilter (16), which reads on “applying the audio signal to the sequence of digital filters. Although Zierhofer teaches on the above elements, he fails to disclose a sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. However, the concept of a sequence of digital filters wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency was well known in the art at the time of filing as taught by Lyon. Lyon teaches an electrical circuit simulating a cochlea model utilizing a digital filter having independent damping and frequency parameters (see Figure 2 where 201-209 are your filters, 211-219 are the HWR (half-wave rectifiers) and 221-229 are the AGC (automatic gain control circuits) (column 4, lines 41-46). A filter bank is an array of bandpass filters that spans the entire audible frequency spectrum. The bank serves to isolate different frequency components in a signal. Replacing Zierhofer’s filter bank with the cochlear model would read on “a sequence of digital filters,

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wherein each filter is configured to process a selected frequency and at least one filter is configured to process more than one frequency. It is obvious that each filter would have a selected frequency. Since Lyon's cochlear model (Figure 2) is essentially the same model as the applicant's (Figure 4) than it is interpreted that for Lyon's model (201-209; Figure 2) the output of each filter provides the tap or coefficient of the previous filter to the subsequent filter so as to allow coefficient sharing between a first and second filter. Thus it would have been obvious to modify Zierhofer's cochlear implant system by using Lyon's cochlear model filter bank arrangement for the benefit of having a device that can be applied over a range of signal processing functions.

Reasons for Allowance

5. Claim 22 is allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 22, the prior art Zierhofer discloses a cochlear implant system. Prior art Lyon (Lyon's Cochlear Model, Apple Technical Report #13, 1988), discloses a Mathematica coded program that implements his cochlea model. However, the prior fails to disclose or make obvious "a computer program for processing an audio signal", "applying the audio signal to the sequence of digital filters". As such the prior art fails to disclose or make obvious a computer program product for processing an audio signal, comprising a computer usable medium as claimed.

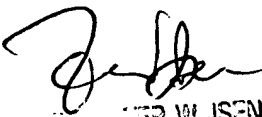
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


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